

This listing of claims will replace all prior versions, and listings, of claims in the application:

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1. (currently amended) A gas discharge laser, comprising:
- a housing;
  - a first electrode;
  - a second electrode;
  - a second electrode support;
  - a first cross-flow blower section, ~~comprising~~ including a plurality of radial blades, further ~~comprising~~ including a plurality of internal hubs and two end hubs, each of said ~~internal and end hubs coupling with a first shaft and together define~~ defining a cylindrical form extending along a cylindrical axis of the blower section;
  - a second cross-flow blower section, ~~comprising~~ including a plurality of radial blades, further ~~comprising~~ including a plurality of internal hubs and two end hubs, each of said ~~internal and end hubs coupling with a second shaft and together define an adjacent~~ defining a cylindrical form ~~to the internal and end hubs of the first cross-blower section and extending to and along a same cylindrical axis of the second cross-flow blower as the first cross-flow blower~~ coaxial with the cylindrical form of the first cross-flow blower section; and
  - a flange having two ends, a first end coupling to the ~~first and second~~ shafts of the first and second ~~blowers~~ blower sections, and a second end coupling, ~~respectively, and to~~ the housing;
  - said flange also ~~comprising two edges, having~~ having a leading edge and a trailing edge, ~~wherein the leading edge couples to the housing at a leading edge point, and wherein the trailing edge couples to the housing at a trailing edge point, and wherein the leading edge point, the trailing edge point and the cylindrical axis define an acute angle within the full angular extent of said cylindrical form~~ with respect to a direction of gas flow.
2. (currently amended) A gas discharge laser as in Claim 1, said flange not ~~coupling~~ to contacting said ~~lower~~ second electrode support.

3. (currently amended) The gas discharge laser of any of claims 1 or 2, wherein a cross-section of the flange has an aerodynamic shape with respect to a direction of ~~the flow of~~ laser gas flow.

4. (currently amended) The gas discharge laser of any of claims 1 or 2, wherein each of the ~~radial~~ blades comprises a top surface having a first radius of curvature and a bottom surface having a second radius of curvature, wherein the first radius of curvature is smaller than the second radius of curvature.

$\beta'$  5. (currently amended) The gas discharge laser ~~including the first and second cross-flow blower sections~~ of claims 1 or 2, wherein each ~~radial~~ blade has a cross-section shaped like an airfoil.

6. (currently amended) The gas discharge laser ~~to~~ of claim 5, wherein inner and outer surfaces of said blades have different radii of curvature.

Claim 7 (cancelled).

8. (currently amended) The gas discharge laser of any of claims 1 or 2, wherein a cross-section of the flange ~~cross-section~~ has an aerodynamic shape with respect to a direction of ~~the flow of laser gas~~ flow, wherein each ~~radial~~ blade has a cross-section shaped like an airfoil, wherein the second end of the flange is coupled to the housing on a side opposite to the ~~upper~~ first electrode.

9. (currently amended) The gas discharge laser ~~including the first and second cross-flow blower sections~~ of any of claims 1 or 2, ~~each further comprising a plurality of internal hubs, and two end hubs~~, wherein the ~~radial~~ blades, internal hubs and end hubs are ~~formed from~~ composed of one of the group consisting of aluminum alloy, magnesium alloy, titanium alloy and steel.

10. (currently amended) The gas discharge laser ~~including the first and second cross-flow blowers of any of claims 1 of 2, each further comprising a plurality of internal hubs, and two end hubs,~~ wherein the radial blades, internal hubs and end hubs are ~~formed from~~ composed of aluminum alloy.

11. (currently amended) The gas discharge laser ~~including the first and second cross-flow blowers of any of claims 1 or 2, each further comprising a plurality of internal hubs, and two end hubs,~~ wherein the radial blades, internal hubs and end hubs are ~~formed from~~ composed of magnesium alloy.

12. (currently amended) The gas discharge laser ~~including the first and second cross-flow blowers of any of claims 1 or 2, each further comprising a plurality of internal hubs, and two end hubs,~~ wherein the radial blades, internal hubs and end hubs are ~~formed from~~ composed of titanium alloy.

13. (currently amended) The gas discharge laser ~~including the first and second cross-flow blowers of any of claims 1 or 2, each further comprising a plurality of internal hubs, and two end hubs,~~ wherein the radial blades, internal hubs and end hubs are ~~formed from~~ composed of steel.

Claims 14-26. (cancelled).

27. (currently amended) A gas discharge laser, comprising:  
a housing;  
an upper electrode;  
a lower electrode;  
a lower electrode support; and  
a cross-flow blower, comprising a first shaft and a second shaft, wherein each of the shafts comprise an end portion, wherein each end portion includes a center cross-sectional area, a first end cross-sectional area and a second end cross-sectional area, wherein the center cross-sectional area has a diameter greater than the diameter of the

first end cross-sectional area, and wherein the center cross-sectional area has a diameter greater than the second end cross-sectional area;

wherein each shaft has a maximum diameter of  $D_{\max}$ . ~~The cross-flow blower of claim 24,~~ wherein each of the end portions further comprise a minimum diameter  $D_{\min}$  and wherein  $D_{\max} - D_{\min}$  of each shaft is approximately .02 millimeters.

28. (currently amended) A gas discharge laser, comprising:

a housing;

an upper electrode;

a lower electrode;

a lower electrode support; and

a cross-flow blower, comprising a first shaft and a second shaft, wherein each of the shafts comprise an end portion, wherein each end portion includes a center cross-sectional area, a first end cross-sectional area and a second end cross-sectional area, wherein the center cross-sectional area has a diameter greater than the diameter of the first end cross-sectional area, and wherein the center cross-sectional area has a diameter greater than the second end cross-sectional area;

wherein each shaft has a maximum diameter of  $D_{\max}$ . ~~The cross-flow blower of claim 24,~~ wherein each of the end portions further comprise a minimum diameter  $D_{\min}$  and wherein  $D_{\max} - D_{\min}$  of each shaft is in the range of .005 to .05 millimeters.

Claims 29-33. (cancelled).

34. (currently amended) ~~A gas discharge laser as in Claim 32, further comprising~~ A gas discharge laser, comprising:

a laser tube filled with a gas mixture;

a plurality of electrodes within the discharge chamber for energizing the gas mixture, said plurality of electrodes including a pair of main discharge electrodes spaced apart by a discharge volume;

an optical resonator for generating a laser beam;

a cross-flow blower assembly including a pair of longitudinally adjacent and coaxially disposed cylindrical cross-flow blowers;  
a flange supportingly disposed between said pair of cross-flow blowers; and  
an electrode support bar for supporting one of the pair of main discharge electrodes, wherein said flange is coupled to said support housing and ~~supportingly at~~ to said blowers, and said flange is not coupled directly to said electrode support bar.

Claims 35-36. (cancelled).

37. (currently amended) ~~The laser of Claim 36,~~ A gas discharge laser, comprising:  
a laser tube filled with a gas mixture;  
a plurality of electrodes within the discharge chamber for energizing the gas mixture, said plurality of electrodes including a pair of main discharge electrodes spaced apart by a discharge volume;  
an optical resonator for generating a laser beam;  
a cross-flow blower assembly including a pair of longitudinally adjacent and coaxially disposed cylindrical cross-flow blowers;  
a flange supportingly disposed between said pair of cross-flow blowers; and  
an electrode support bar for supporting one of the pair of main discharge electrodes, wherein said flange is coupled to the electrode support bar;  
wherein said flange ~~further~~ couples said blowers to said support housing only at an outer enclosure of the laser.

Claims 38-40. (cancelled).

41. (currently amended) ~~The laser of Claim 38,~~ A gas discharge laser, comprising:  
a laser tube defined by a support housing filled with a gas mixture;  
a plurality of electrodes defining a discharge volume within the laser tube, the electrodes for energizing the gas mixture, said plurality of electrodes including first and second main discharge electrodes spaced apart by the discharge volume;  
a optical resonator for generating a laser beam; and

a cross-flow blower assembly for circulating the gas mixture through said discharge volume, said cross-flow blower assembly including a shaft, said shaft including a coupling segment with a longitudinally non-uniform thickness, such that when said blower vibrates in bending mode, said coupling segment rocks smoothly within a mating coupling of the support housing;

b1      wherein a difference in maximum and minimum thickness of said coupling segment is less than 1.0 mm

42.      (original) The laser of Claim 41, wherein said difference is more than 0.005 mm.

43.      (currently amended) The laser of Claim 38 ~~41~~, wherein a said difference ~~in~~ ~~maximum and minimum thickness of said coupling segment~~ is between 0.005 mm and 0.05 mm.

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